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**Notice of Allowability**

Application No.

09/767,455

Applicant(s)

SATHER, DALE A.

Examiner

Matthew J. Ludwig

Art Unit

2178

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Request for Continued Examination received 10/31/07.
2. ☒ The allowed claim(s) is/are 28-35 and 51-58.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other _____   |

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mason Boswell on February 1, 2008.

The application has been amended as follows:

Applicant cancelled claims 36-50 and added claims 51-58, which are listed below. The new claims 51-58 recite a computer-readable medium form and are based upon the allowed claims 28-35.

51. (new claim) A computer-readable medium containing instructions for controlling a computer system to generate a new representation of a document, the document having a current representation based on an XML model in which hierarchical relationships between elements are defined by the XML model and non-hierarchical relationships between elements and contents of elements are not defined by the model, by a method comprising:  
identifying entities referenced by elements of the current representation that are to be items of the new representation, wherein the current representation represents some relationships between entities hierarchically by nesting elements and other relationships non-hierarchically by referring to another element of the hierarchical model, such that the current representation contains

multiple references to at least one entity, wherein identifying entities comprises parsing expressions of the elements of the current representation using parsing rules;

for each identified entity, creating for the new representation an item corresponding to the identified entity, wherein only one item is created in the new representation for the at least one entity having multiple references in the current representation, wherein creating the item comprises generating the new representation using generation rules that specify patterns for creating items of the new representation;

for each created item, adding to the item that is a subject of a hierarchical relationship as indicated by the current representation a relation to each item corresponding to an identified element that is an object of the hierarchical relationship as indicated by the current representation; and

for non-hierarchical relationships between elements and content of elements as indicated by the current representation, adding to an item corresponding to the element that is the subject of the non-hierarchical relationship a relation to the item corresponding to the content of the element that is the object of the non-hierarchical relationship,

wherein the created items and the added relations form the new representation of the document, such that when an entity is the subject of both a hierarchical and nonhierarchical relationship in the current representation, the new representation contains a single instance of the entity and wherein the new representation forms a data structure that can be traversed by relationships between entities such that a program can use the new representation to interpret hierarchical and nonhierarchical relationships in the same way.

- 52. (new claim) The computer-readable medium of claim 51 wherein the hierarchical relationships are explicit and the non-hierarchical relationships are implicit.
- 53. (new claim) The computer-readable medium of claim 51 wherein the hierarchical model is XML based.
- 54. (new claim) The computer-readable medium of claim 51 wherein the hierarchical relationships are indicated by parent and child relationships of XML elements.
- 55. (new claim) The computer-readable medium of claim 51 wherein a non-hierarchical relationship is an attribute of an XML element that refers to another XML element.
- 56. (new claim) The computer-readable medium of claim 51 wherein a non-hierarchical relationship is a property of an XML element that refers to another XML element.
- 57. (new claim) The computer-readable medium of claim 51 wherein a non-hierarchical relationship is content of an XML element that refers to another XML element.
- 58. (new claim) The computer-readable medium of claim 51 wherein the new representation of the document is based on an item, relationship, and attribute model.

### **REASONS FOR ALLOWANCE**

- 2. Claims 28-35 are allowed.
- 3. The following is a statement of reasons for the indication of allowable subject matter.  
  
The prior art, USPN 6,912,538 to Stapel, teaches a matrix traversal representation of a document type definition, which defines the types of elements that can appear in a document and a permitted set of relationships between document elements. Documents adhering to a hierarchical model use various implicit mechanisms to represent non-hierarchical relationships. These

mechanisms involve repeating the data in each place where the entity referred to by the data has a relationship with another entity. Repeating data causes difficulty when validating the document making changes to the document, because many instances of the same data may need to be located and changed. The reference fails to teach or suggest converting a current presentation of a document having multiple references to an entity to a new representation of the document that represents each entity with a single item. Furthermore, the dynamic generation of structured documents as taught by Stapel fails to teach or suggest a means of generating the new representation using generation rules that specify patterns for creating items of new representation. The methods for creating a single instance of the entity wherein the new representation forms a data structure that can be traversed by relationships between entities such that a program uses the new representation to interpret hierarchical and nonhierarchical relationships the same way is not shown in the prior art of record and would not have been obvious to one of ordinary skill in the art to have modified the reference and or combined the prior art of record to come up with applicant's claimed invention.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Ludwig whose telephone number is 571-272-4127. The examiner can normally be reached on 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Hong can be reached on 571-272-4124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



STEPHEN HONG  
SUPERVISORY PATENT EXAMINER

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